THE NATURE CONSERVANCY NEWS

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SUE DODGE, EDITOR

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COVER PHOTO: Beach Grass, by Michael P. Gadomski.
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LAND CONSERVATION THROUGH PRIVATE ACTION

The Nature Conservancy is a national conservation organization, receiving its support from the public, whose resources are devoted to the preservation of ecologically and environmentally significant land.

Some 748,338 acres of forests, swamps, marshes, prairies, mountains, beaches, and islands in 1,403 projects throughout the United States, have been saved from destruction by the Conservancy since the acquisition of its first preserve in 1954.

The Nature Conservancy works in three ways to protect threatened natural areas: by purchase of land with funds raised through public subscription, by acceptance of donations of land, and by advance acquisition of land for local, state, and federal governments.

A member-governed non-profit organization, The Nature Conservancy was incorporated in 1951 in the District of Columbia for scientific and educational purposes.

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California

FAIRFIELD-OSBORN SANCTUARY — Addition—(Sonoma County). The 48-acre tract, a gift of Mr. and Mrs. William M. Roth, expands the preserve to 145 acres. The area features two ponds and a stream fed by three springs, as well as a stand of mature California live oak and California laurel.

LANPHERE-CHRISTENSEN DUNES—Addition—(Humboldt County). The 1¼-acre tract includes beach pine forest with sitka spruce and grand fir and encompasses a small portion of Mad River Slough. The entire preserve, now totaling 48 acres, is leased to Humboldt State University for management.

Colorado

ZINN PROPERTY (Douglas County). On behalf of the U.S. Forest Service, the Conservancy purchased a 260-acre tract completely surrounded by Pike National Forest. The area, predominantly ponderosa forest with a 50-acre meadow, is situated near Devil's Head, a prominent rock outcropping. Traversed by Jackson Creek, the area provides habitat for mule deer, blue grouse, pine squirrels, porcupines, and various birds including eagles, hawks and jays.

Florida

GULF ISLANDS (PERDIDO KEY) PRESERVE (Escambia County). In cooperation with the National Park Service, the Conservancy purchased 75 acres on Perdido Key for inclusion in the Gulf Islands National Seashore. Valued at $1 million, the property stretches fully across Perdido Key—from the Gulf of Mexico to Big Lagoon Sound—and includes clean sand beaches, primary and secondary dunes and swales, brushy vegetation, and typical salt marshes. The preserve, which adjoins land partially developed with highrise condominiums, is frequented by common wading and shore birds of the coastal islands.

WALK-IN-THE-WATER CREEK—Addition—(Polk County). The 4-acre tract, a gift of Dr. and Mrs. Bruce Newell, contains pine, hardwood, and palm forest along Weohyakapka Creek. Wildlife on the preserve includes wading birds, wild turkey, fox, otter, and wild boar. The donors are responsible for managing the area.

Illinois

GENSBURG-MARKHAM PRAIRIE—Additions—(Cook County). Four tracts totaling approximately 1½ acres were purchased by the Illinois Chapter for addition to this prairie located on the

glacial lake plain just south of Chicago. Now totaling 94 acres, the prairie is scheduled for ultimate transfer to and management by Northeastern Illinois University.

REED-TURNER WOODS (Lake County). A gift of Mr. and Mrs. Harold Turner, the 14-acre tract consists of second-growth hardwood forest fronting Reed Lake and Indian Creek. The wildflower population is very diverse, and one 5-acre portion contains a very high quality community including the maidenhair fern, now rare in the Chicago area. The Illinois Chapter has responsibility for managing the preserve.

Indiana

OLIN LAKE PRESERVE (LaGrange County). 130 acres include approximately one mile of shoreline on Olin Lake, the largest remaining undeveloped lake in the state. A woodland adjacent to the low, marshy shoreline contains beech, red oak, black oak, swamp white oak, basswood, and sugar maple, as well as a stand of tamaracks. The area is to be transferred to the Indiana Department of Natural Resources for establishment of a state nature preserve.

Maine

BIDDEFORD POOL—Addition—(York County). The 8-acre tract consists primarily of rock outcroppings and narrow gravel beaches along the Atlantic shoreline, as well as a number of small tidal pools. The area is recognized as part of the most pristine section of shoreline in southern Maine and one of the best bird habitats, providing a resting place for migratory arctic birds. Donated to the Conservancy by Mrs. Katherine T. Benedict in memory of her father, Hulbert Taft, the property is to be transferred to and managed by the Maine Audubon Society.

WELCH'S ISLAND (Hancock County). A conservation easement on a 3/8-acre island in upper Frenchman Bay is a gift of Dr. Francis H. Chaffee. The granite-buttressed island is frequented by a variety of birds and provides a resting place for harbor seals.

WHITE MOUNTAIN NATIONAL FOREST—Addition—(Oxford County). In a cooperative effort with the U.S. Forest Service, the Conservancy acquired 1,447 acres for inclusion in White Mountain National Forest. The rocky, ledgy area is forested with red pine, spruce, poplar and beech and contains the headwaters of Lake Kezar, as well as several pristine streams and waterfalls.

Maryland

VAUGHN WILDLIFE MANAGEMENT AREA (Worcester County). 210 acres include woodland fronting Scarboro Creek and about 40 acres of marshland. Located about a mile from Chincoteague Bay, the property provides excellent habitat for ducks, geese, fish and crabs. The area, acquired by the Maryland Department of Natural Resources with the Conservancy's assistance, is an addition to the state-owned Vaughn Wildlife Management Area.

Michigan

HOLLOWAY RESERVOIR—Additions—(Genesee and Lapeer Counties). Three tracts totaling approximately 11 acres of wooded, rolling land were purchased by the Conservancy. The Holloway Reservoir project now totals approximately 1,165 acres.

TOWER-TROY NATURE PRESERVE (Manistee County). Two tracts totaling 23 acres, gifts of Dr. Lucia Tower, include sand dunes and typical dune flora along 500 feet of Lake Michigan shoreline. Wind action off the lake has created a 7 to 8-acre gouge, or "blowout", in the property's frontage sand dune. Mature broadleaf and mixed broadleaf-coniferous forest covers the dune's leeward side. Management of the area will be the responsibility of the donor.

Minnesota

BLAZING STAR PRAIRIE, Minnesota Prairie Chicken Preserve System (Clay County). The 160-acre prairie, within the heart of the endangered prairie chicken's remaining range, lies on one of the highest ridges of the Agassiz Beachline and overlooks the Red River Valley. The prairie's undulating topography provides for a variety of prairie types from wet to mesic to dry. White-tailed deer, upland plovers, marbled godwits, hudsonian godwits and sharp-tailed sparrows inhabit the preserve. Funds for the purchase of the area will be provided by Chapter fundraising.

CHIPPEWA PRAIRIE—Addition—(Chippewa County). The 40-acre purchase enlarges the native-grass prairie preserve on Lac Qui Parle Lake to 694 acres. Management of the entire prairie, which is a unit of the Katharine Ordway Prairie System, is the responsibility of the Minnesota Chapter. Funds for the purchase were provided by Miss Katharine Ordway.

AUDUBON PRAIRIE, Minnesota Prairie Chicken Preserve System (Clay County). Lying in an ancient inlet of glacial Lake Agassiz, the area's slightly

rolling and rich lake bottom soil supports a high diversity of prairie flora. The wet to mesic prairie contains two established booming grounds, and three others are known to exist nearby. Purchased by the Minnesota Chapter with funds provided by the National Audubon Society, the 240-acre prairie will be managed by the Chapter with the assistance of the Minnesota Department of Natural Resources.

OTTAWA PRAIRIE (LeSueur County). The 70-acre prairie lies on a southwest facing hillside on the ancient riverbanks of glacial Lake Warren. The bluffs are extremely prominent and the ridge top overlooks the Minnesota River. The tract, which includes two Indian mounds and two natural running springs, supports excellent prairie flora as well as ruffed grouse, white-tailed deer, and other native wildlife. With the assistance of Gustavus Adolphus College, the Minnesota Chapter will manage the area.

SLEEPING BISON PRAIRIE (Swift County). A dry rolling prairie lying on the ancient river bluffs of glacial River Warren, the 360-acre area supports an excellent diversity of tallgrass prairie flora. The tract adjoins Lac Qui Parle refuge, a state wildlife management area, and lies within 1½ miles of the Conservancy's Chippewa Prairie. Purchased by the Minnesota Chapter with funds donated by Miss Katharine Ordway, the prairie provides habitat for white-tailed deer, upland sandpipers and marbled godwits, and is part of the largest area of remaining prairie in southwestern Minnesota.

New York

HOPE GODDARD ISELIN PRESERVE—Addition—(Nassau County). The 10½-acre tract is the fourth and final gift in a series of annual donations by Mrs. Mary Dodderidge, Mrs. Ann Payne, and Mr. Sidney Mitchell, Jr. Now totaling 42 acres, the preserve consists of open grassy fields and woodland of American beech, white pine, laurel, hickory, maple and oak. Management of the area will be coordinated by the Long Island Chapter.

MIANUS RIVER GORGE—Additions—(Westchester County). Two key additions, 5 and 3 acres,

donated by Norris and Mary Darrell and James Todd, Jr., respectively, enlarge the preserve to 346 acres. The program to save scenic Mianus Gorge has continued since 1954 and is the oldest active Conservancy project.

WALLACE PROPERTY (Westchester County). A gift of Mrs. Ilo B. Wallace, the 4-acre property is thickly wooded with indigenous hardwood trees and provides habitat for numerous small mammals and native birds. The tract is to be transferred to The Town of Lewisboro with a reverter to the Conservancy.

Ohio

SOUTHEAST PARK—Additions—(Hamilton and Clermont Counties). The Conservancy assisted the Hamilton County Park District in the purchase of 4 tracts totaling approximately 53 acres. The areas, consisting primarily of typical eastern deciduous forest, are to be conveyed to the Park District for inclusion in a proposed 2,200-acre regional park. An additional 40 acres, also to be included in the park, were donated to The Nature Conservancy by Mrs. Sarah K. Weston.

Tennessee

GILMORE-REDMORE TRACT (Cocke County). The Conservancy assisted the U.S. Forest Service in the acquisition of 219 acres adjoining Smoky Mountain National Park. Crossed by the Appalachian Trail, the property contains upland hardwood and pine forest and numerous small springs and streams. The area will serve as buffer for the Appalachian Trail and will be managed by the Forest Service.

Virginia

MASON NECK—Addition—(Fairfax County). In a cooperative effort with the U.S. Fish & Wildlife Service, the Conservancy purchased 64 acres adjacent to Mason Neck National Wildlife Refuge. The flat, wooded land is considered an important buffer area to the Refuge.

Washington

CYPRESS ISLAND—Eagle Cliffs Addition—(Skagit County). 23 acres lie adjacent to a 133-acre tract purchased by the Conservancy in 1974. The island in Puget Sound includes coves, tidepools, rocky cliffs and Sitka spruce/western hemlock forest with varied understory. Widely recognized as the island most worthy of preservation in the Pacific Northwest, Cypress Island provides a nesting area for the endangered bald eagle. The property is to be transferred to the Washington Department of Natural Resources.

SKAGIT RIVER BALD EAGLE SANCTUARY (Skagit County). In a cooperative effort with the Washington State Department of Game, the Conservancy purchased 73 acres on the middle reaches of the Skagit River in the western foothills of the North Cascades. The tract lies within a proposed 1,000-acre sanctuary which is habitat for the largest wintering population of northern bald eagles in the Pacific Northwest. Large annual runs of salmon in the clear river support a variety of wildlife species besides the eagle: osprey, kingfisher, merganser, western grebe, mink and otter. The preserve will be transferred to the Department of Game for use as a wildlife sanctuary.

West Virginia

MONONGAHELA NATIONAL FOREST—Hedrick Tract—(Pendleton County). In cooperation with the U.S. Forest Service, the Conservancy purchased a 221-acre inholding in the Seneca Rocks National Recreation Area located on Reed Creek and surrounded on three sides by the National Forest. The wooded property will be transferred to the Forest Service within a year.

The Primal Prairie

Second in a Series

By Anne Ilka Webb

Once, prairies occupied an estimated billion acres, or nearly one-fifth of the North American continent. Bison grazed by the millions; prairie dog towns tunneled for miles through rich black soil. More than 80 species of mammals, 300 species of birds, and 250 species of grasses and broad leaf plants were woven into a tough, resilient and complex tapestry. Drought and fire and violent wind were not calamities for the fabled "sea of grass," but energies necessary to the prairie ecosystem.

Yet, during the colonial era, the vast expanse of land between the mountains was largely unknown and its character largely unimagined. Images of prairie pothole country, of stretches of grasses eight feet tall, were not yet part of the American consciousness. Ironically, the red skinned inhabitants of this land were experiencing the twilight of their independence and freedom to live as they pleased, at the same time the American colonials were struggling to secure liberty and self determination.

In my youthful days, I have seen large herds of buffalo on these prairies, and elk were found in every grove, but they are here no more . . . For hundreds of miles, no white man lived, but now trading posts and settlers are found here and there throughout the country and in a few years, the smoke from their cabins will be seen to ascend from every grove and the prairie covered with their cornfields.

Shabonee, peace chief and spokesman of the Potawatomi (1827)

Not long after the establishment of the new nation, the wheels of covered wagons began to crease the prairie soil, in thin lines at first, then in great floods, some cutting so deep that tracks remain in some places even today.

Then, once the protective mountains to the east were breached, the rivers crossed, the Indians destroyed or driven westward, the building began. Sod houses become farms; farms became factories and towns; towns grew into cities. And the vast grasslands were drained, plowed, trampled and paved—annihilated in less than a hundred years.

Today, only remnants of unplowed virgin prairie remain. Among these token parcels of the once vast ecosystem is the Conservancy's Katharine Ordway Prairie Preserve System—over 11,300 acres in five states. Many of the prairie units in the system are named in honor of the Indian tribes which lived there before the settlers spilled over the Appalachians—Osage Prairie in Missouri, Konza Prairie in Kansas, Pawnee Prairie in Nebraska, Sioux Prairie in South Dakota, and Santee, Wahpeton and Chippewa Prairies in Minnesota.

What's in a place name? In the case of these prairies, the names are not mere linguistic relics, but a living record of human activity.

The Great Spirit made us all—he made my skin red, and yours white; he placed us on this earth, and intended that we should live differently from each other. He made the whites to cultivate the earth, and feed on domestic animals; but he made us, red skins, to rove through uncultivated woods and plains; to feed on wild animals; and to dress with their skins . . . I love my country—I love my people—I love the manner in which they live . . . Let me enjoy my country, and pursue the buffalo and the beaver and the other wild animals of our country.

Petalesharo, a chief of the Pawnee (1822, at a conference with President Monroe)

Typical plains tribes depended on the bison for food, clothing and shelter, the annual round of life being closely adapted to the habits of the

Though the plains Indians hunted the buffalo, depletion of the herds did not begin until the white settlers brought increased demands for buffalo meat and skins.

herd. They ate the flesh; used the hides for leggings, shirts and shoes, and for the light-weight, highly portable, warm-in-winter, cool-in-summer tipis and for the blankets and other furnishings in these tipis; made knives from the bones and glue from the hoofs; and burned dried "chips" or excrement for fuel.

As the pioneers established themselves on the prairies, they, too, took up buffalo hunting. But it was not until after 1872 that the herds started to be seriously depleted. When railroads were driven deep into the western plain, they brought both the need to feed masses of workers, soldiers, and swelling waves of immigrants, and the ability to meet demands of the East—the need for skins to fuel the fashion fad of buffalo robes and for use by tanneries which had discovered a means of turning them into leather. To satisfy these demands, the buffalo were slaughtered at a rate of two to three million a year.

We do not think of the great open plains, the beautiful rolling hills, and the winding streams with tangled growth, as "wild." Only to the white man was nature a "wilderness" and only to him was the land "infested" with "wild" animals and "savage" people. To us it was tame . . . Not until the hairy man from the east came and with brutal frenzy heaped injustices upon us and the families we loved was it "wild" for us.

Chief Luther Standing Bear
of the Oglala band of Sioux
(early 20th century)

The reasons for the decimation of the American Indian population are many, complex and much debated in history and polemic. Surely the destruction of the great herds of bison, the many broken treaties and more broken promises, the forced removal of people to reservations which were often inhospitable to their way of life, all contributed to making the Indian, by the turn of the century, the "vanishing American."

The Indian had lived in a state of balance with nature, and this balance was undone. Almost without exception, they regarded with courtesy and respect the land, the animals and everything which composed their environment, and saw acquisition of private property as a way to poverty, not riches.

Our land is more valuable than your money. It will last forever . . . This land will be here to give life to men and animals. We cannot sell the lives of men and animals; therefore, we cannot sell this land . . . You can count your money and burn it within the nod of a buffalo's head, but only the Great Spirit can count the grains of sand and the blades of grass of these plains. As a present to you, we will give you anything we have that you can take with you; but the land, never.

A chief of one of the principal
bands of northern Blackfeet
(upon being asked to sign
one of the first treaties
in his region)

Anne Ilka Webb is editor of *InterACTION*, a national and international publication of the Federal Voluntary Service Agency (ACTION). A native of Annapolis, Maryland, and a resident of Washington, D.C., Ms. Webb is a former member of the Conservancy staff and has written in the past for the *News*. She also works as a freelance graphic designer and is active as an actress and director in community theater.

ANATOMY OF A FUND DRIVE

By Steve Oney
Midwest Regional Office

Not surprisingly, much of the Conservancy's remarkable success in saving thousands of acres of land can be attributed to the ability of its members, volunteers and staff in raising dollars to buy land. Exemplary of the Conservancy's prowess in land purchase is the following account of a recently completed Minnesota Chapter fund drive.

A Minnesota Chapter volunteer summed it up, "Do you realize what you are trying to do? Are you aware that you will be asking people to donate money to raise $310,000 to preserve roughly 3,000 acres of virgin prairie that few people have ever seen, in order to save prairie chickens—a species that most have never even heard of? Do you realize that in the Twin Cities, at the present time, there are fund drives that together total more than $240,000,000, all of which are competing for the same dollars? Do you appreciate the fact that however well known The Nature Conservancy is in many sectors of the country, most people you meet will not have heard of it, won't be able to spell it, or even pronounce it? Now, do you expect me to go out there and raise money against those obstacles?"

We did, and he did.

With options secured on the lands to be purchased, the first step was the careful planning of the campaign. A Chapter committee compiled lists of every individual, corporation and foundation that might conceivably be willing to make a contribution.

Materials for the fund drive were prepared. A twenty page proposal was written which outlined in detail the importance of the prairie preservation program and described fully each tract of land to be purchased. A Minneapolis printing firm, Bolger Publications, helped in the preparation of a brochure and envelope to be used in a mailing solicitation. Prior to launching the appeal, public service announcements were aired on local television stations to increase the Conservancy's visibility.

Edmund Bray (Chapter Advisor), Steve Oney (Assistant Director, Midwest Regional Office), Philip Harder (Membership Chairman and Trustee), and Thomas Savage (Chapter Chairman) meet to plan fundraising strategies.

"In spite of the obstacles in front of us," explained a Chapter volunteer, "we felt the Conservancy's project would be well received if we could just get the story out. Environmental awareness has increased significantly over the past few years and today many people have a strong and abiding interest in protecting wild lands. Because The Nature Conservancy's program to preserve threatened wild lands is a positive action that produces real results, we were convinced that many people would respond. We felt that no high pressure sales tactics would be needed, and that the program would sell itself if we simply presented the straightforward objectives and merits of the project."

With preparations completed, the fund drive got underway. Personal calls were made on Twin Cities foundations, most already besieged with requests for grants. For a while there was no response; but then came the first big break. The Bush Foundation provided a challenge grant to help with the purchase of four of the virgin prairie tracts in western Minnesota. Up to $53,648 would be granted by the Foundation if the Chapter could raise an equal amount from other sources.

The news of the matching grant came just days before the Chapter's mailing of 8,000 brochures to appeal to the Minnesota public. Quickly a news release was prepared to insert in the brochure announcing the grant. Before the brochures could be mailed, the inserts had to be hand stapled, address labels affixed, and the brochures sorted by zip code. The Chapter sent out a call for help with the tedious job. That evening the Chapter office swelled with trustees, members, friends of members, and complete strangers, all pitching in to get the mailing out.

With funding requests still pending to area foundations and corporations, the mail appeal was sent to a large assortment of Minnesotans asking for their support in saving the lands the Conservancy had secured. In any general public solicitation by mail, a one-half of 1% response is considered a good showing; if a full 1% respond, the results are considered excellent. For the Minnesota Chapter, nearly 5% of the individuals to whom requests were sent responded with generous contributions; some gave twice and even three times.

Funds raised by the Chapter have been used to purchase hundreds of acres of tallgrass prairie, an ecosystem rapidly disappearing in Minnesota.

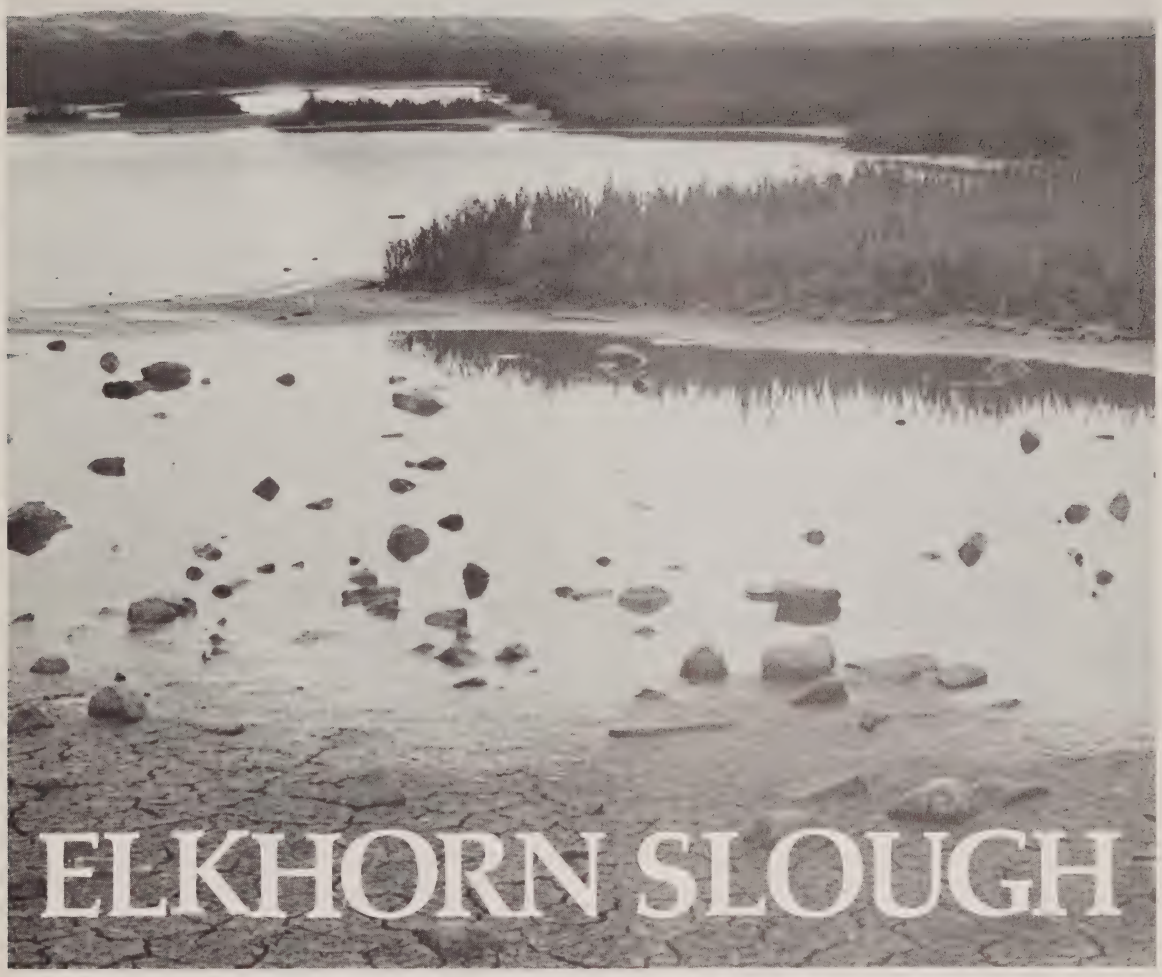
Traditionally, funding for land saving projects has been hard to come by. Although nearly everyone mourns the loss of a scenic area that once provided an aesthetically pleasing view, it is still difficult to convince a foundation's Board of Trustees or an individual how saving a particular tract of land in its natural condition can take precedent over the problems that beset urban areas. Urban problems, national and international crises always seem more immediate than environmental concerns.

"In fundraising efforts, one of the most difficult handicaps we face is that potential donors are simply not well enough informed to realize the seriousness of the issue. While many of us may witness the massive disruptions of many of our nation's ecosystems, it almost takes a doctor's degree in ecology to begin to grasp the importance of preserving what remains and how incredibly reliant man is on the survival of natural lands. For this reason, whenever it was possible the fundraising committee asked one of our volunteer scientists to accompany us on foundation visits. We felt that the scientists themselves were best qualified and most able to present the straightforward, unhysterical rationale for the preservation of natural systems."

Contributions continued. In less than a year's time there was cause to celebrate. The volunteers held a special get-together to exchange a well-deserved round of mutual congratulations. Not only had the campaign goal been completed, but it had actually been surpassed by $17,000—$327,000 had been raised in less than one year. Additionally, during the months that the fundraising campaign was in progress, the Chapter did not stop buying land. More than 1,500 acres of natural lands were optioned at a cost of $327,480 and separate funding for nearly $300,000 of that amount was identified.

The Minnesota Chapter has not been squeamish about plunging back into debt. To date the Chapter has committed itself to raising more than $270,000 to acquire 2,000 acres in Minnesota.

Of all of the elements involved in a successful fundraiser, by far people are the most important. The Minnesota Chapter can accomplish ambitious fund drives only because it is blessed with people who are willing to be actively involved. As one of those individuals remarked, "Most organizations think something must be seriously wrong when they find themselves in debt. Now nobody in the Chapter feels comfortable about the job we're doing unless we are up to our necks in debt. Give us enough time and somehow, some way, we will find the money to buy the land. But unless we act today, we may not find the land."



ELKHORN SLOUGH

Article by **Annette Boushey**/Photographs by **Nancy Burnett**

Midway between Monterey and Santa Cruz on the California coast, an arm of the sea reaches inland about seven miles. The narrow tidal channel, following the path of an ancient river, meanders through vast marshes surrounded by rolling hills. Known as Elkhorn Slough, possibly because of the native tule elk that once lived on its banks, the estuarine system encompasses around 2,500 acres of tidal flats, submerged and semi-submerged land, including the second largest salt marsh in California. It provides some of the only remaining habitat for several rare and endangered species, and is well known to marine biologists, ornithologists, fishermen and shellfish enthusiasts for the variety and abundance of its marine and bird life. The Nature Conservancy has been working on a preservation program for Elkhorn Slough since 1969, and has so far set aside some 350 acres of its critical marsh and watershed lands.

Although most often referred to as an estuary, Elkhorn Slough fits the usual definition only in the winter rainy season, when the run-off from the surrounding hills brings in enough fresh water to make it less saline than the sea. No major streams flow into the slough, and in the dry summer months it becomes a tidal marsh or the special kind of estuary defined by Eugene Odum as "hypersaline."

Elkhorn Slough's current situation as a salt water estuary dates back to 1908, when the Salinas River most recently changed its course. Before then, Elkhorn Slough opened into the river rather than directly into the sea, and was thus a fresh water lagoon. However, archeological findings in the Indian shell mounds around Elkhorn Slough

A shore crab ventures out of his burrow.

reveal that it has been a salt water estuary at other periods in its past as well.

It is known that Elkhorn Slough was a river during the Pleistocene Age (10,000 to 30,000 years ago), but there is some uncertainty about what area it drained. One theory is that the Sacramento and San Joaquin Valleys may once have emptied through the ancient river into Monterey Bay. Another theory, not necessarily contradictory, is that it drained a huge lake located about seven miles inland from the present slough.

The theory of the inland lake suggests one explanation for why Monterey County contains the northernmost and southernmost limits of an unusually high number of plant species. With the huge lake flowing into Elkhorn Slough from the east, the waters would have formed a significant divide, difficult for certain kinds of plants to cross.

Elkhorn Slough may still function as a barrier for some species of amphibians. The Santa Cruz long-toed salamander, an endangered species, has been found close to the northern edge of Elkhorn Slough, but never to its south.

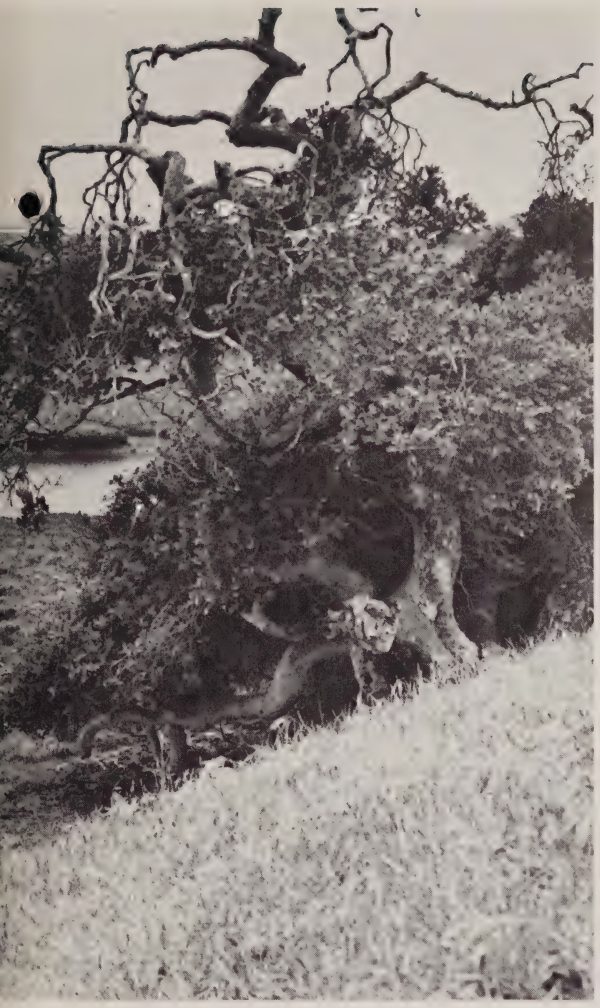
Elkhorn Slough is well known to scientists for its variety of mud-dwelling invertebrates. The mud-flat, though it appears lifeless at the surface, contains numerous species of crabs, amphipods, shrimps, oysters, barnacles and nudibranchs. There are also twenty-eight species of clams, of which the bent-nosed clam (*Macoma nasuta*) is the most abundant. Two species of rare invertebrates are known to live only in Elkhorn Slough and in Morro Bay, and another species has been found only here.

Elkhorn Slough is the only major undisturbed estuary remaining along 250 miles of California coast between Morro Bay and San Francisco.

Near the mouth of the slough there is a large population of *Urechis*, a long wormlike creature known as the "innkeeper" because other small animals share its burrow. Its guests, from whom *Urechis* does not seem to get much in return, might include a scale worm, a pair of pea crabs and a goby. If it escapes the fate of becoming food or bait for a leopard shark, *Urechis* may live as long as sixty years.

About ninety percent of the vegetation at Elkhorn Slough is pickleweed (*Salicornia virginica*), a succulent that is able to retain enough water within its tissues to withstand the salinity of tidal waters. In different stages of its growth, the hollow segments of this plant turn different colors, from pale green to coral and crimson. The life-cycle of the pickleweed thus creates sweeping seasonal changes of color that add to the subtle pageant of the marsh.

At the edge of the marsh, small burrowing



shore crabs make their homes among the roots of the pickleweed. Venturing out of their holes in the evening to scavenge, they sometimes become the prey of large birds. The bounty of the salt marsh indeed results from the harsh reality that any of its multitudinous feasters may, at practically any moment, become the feast.

Sea lions are sometimes found in Elkhorn Slough, and Harbor seals, who use it as a hauling ground, can often be seen resting on the mudflat or slipping quietly into the water.

Seventy-three different species of fish have been identified in Elkhorn Slough, and studies are being conducted to determine the extent to which each of these species makes use of the estuary. Some kinds of perch and shark bear their young in the open water, for example, and jacksmelt and herring lay their eggs on certain substrates of the slough. The smelt is a major source of food for striped bass and for pelicans. The herring is commercially important as well as being a link in the survival chain of many other fish and wildlife species.

The natural productivity of coastal marshes sustains a large percentage of our migratory birds, and Elkhorn Slough is a vital link in the Pacific flyway. When the tide recedes from the marshes of Elkhorn Slough, many species of birds arrive to dine on the mudflats. Sandpipers, dowitchers, willets, curlews and godwits walk on the shoreline, each probing the mud at the depth that suits its beak. The long-legged avocets walk in slightly deeper water, swishing their up-turned bills back and forth as they feed.

The open water attracts still other kinds of birds. Many species of ducks stop to rest in the slough during their seasonal migrations. Occasionally, loons appear, diving and swimming deep under the water for fish. The streamlined terns soar like swallows and plunge head-on into the slough. One of the terns that visits Elkhorn Slough, known as the least, is listed by the State Department of Fish and Game as an endangered species. Snowy and common egrets both frequent the slough, and great blue herons are reported to nest in a large grove of trees nearby. Elkhorn Slough's summer populations of brown pelicans—which appear to be making a comeback, but are still listed as endangered—have recently been estimated by birdwatchers to number as high as 2,000.

One of the least conspicuous birds of the slough is the endangered California clapper rail. A shy brown member of the ancient rail family, it nests

Inch-long snails (Battillaria) are among the slough's numerous mud-dwelling invertebrates.

in the pickleweed and never ventures far from its edge. At least one of them was seen on The Nature Conservancy's land this past spring. Elkhorn Slough and parts of San Francisco and San Pablo Bays are the only remaining areas that offer the California clapper rail a chance for survival.

Elkhorn Slough has been an important research site for scientists and students for many years. Ten local colleges and universities hold classes here and thousands of elementary and high school students have visited the slough on field trips. The California State University system operates the Moss Landing Marine Laboratory where students and professors are presently conducting a two-year baseline study of the marine organisms inhabitating the estuary. The results of their work should add much to our knowledge of the slough and its contribution to the ecology of the Pacific Ocean.

But in spite of Elkhorn Slough's scientific and educational value and its importance in supporting fisheries and wildlife populations, most of the system remains unprotected. The most serious threats to the integrity of the estuary are the growing pressures to alter the land for intensified agricultural, industrial, recreational or residential uses. The mouth of the estuary has been dredged for a harbor, eliminating the vegetation and habitat for mud-dwelling organisms. Several com-

Above, a black-necked stilt searches for food in the slough's shallow waters. Below, the ghost shrimp, a rare species, lives in extensive, many-branched tunnels under the surface of the mudflat.

Rolling hills surround the vast marshes of Elkhorn Slough.

mercial and industrial facilities have also been built around the harbor, and the effect of their operations are being carefully studied.

Most of the land along the slough is zoned for agricultural use, and a few marshes have been diked to create additional space for grazing. Any further alteration of the marshland, however, could result in erosion of its banks, pollution of runoff water, disruptions of food chains, and loss of habitat for resident and migrant species.

One of the primary reasons Elkhorn Slough has remained as undisturbed as it is today is the presence of a low bridge under which only extremely small boats can pass. The California Highway Department has plans on its books, however, for rerouting Highway One to cross the slough further inland, and to construct a higher and wider bridge to replace the old one. A higher bridge would allow heavier boating traffic, and a larger highway could bring unbearable pressure for recreational, commercial and residential uses of the fragile ecosystem.

Whatever comes to pass, the slough's delicate marshes must be set aside, and the use of surrounding buffer land must be controlled. Many governmental agencies at both the state and federal level recognize the importance of Elkhorn Slough and urge its preservation. All seem to agree that acquisition is the only sure way to accomplish it, but no government agency has the necessary funding to carry out the needed acquisition program.

The Nature Conservancy's involvement in the Elkhorn Slough project dates back to 1968 when the University of California's newly established Natural Land and Water Reserve System alerted us to the slough's importance for ecological study. In October of 1971, the Conservancy made its first acquisition at Elkhorn Slough by purchasing an area known as the Lillian Devendorf Hohfeld Preserve, 120 acres of marshland near the upper end of the estuary. Two 30-acre gifts on the western side of the slough adjacent to the initial purchase were later received. And in 1974, 163 acres were acquired, half by donation and half by purchase, bringing the preserve's total acreage to 343.

Since all the marshland along the estuary is part of an interrelated system, the fate of one part affects the whole. The Conservancy plans to continue its efforts to protect more of the delicate marsh and critical watershed of Elkhorn Slough. Fund raising is being carried on by the Western Regional Office, both for management and for further expansion of the preserve.

The opportunity to save a coastal marsh and estuarine system of the quality of Elkhorn Slough is rare. In the past, American conservation has often been more concerned with showpieces than with the fundamental workings of the land organism. As we learn more about the natural processes that sustain all life, we may realize that an undisturbed estuary, however unobtrusive, is one of our most important challenges.

COST OR INVESTMENT?

The Economics of Environmental Repair

On April 26, 1975, Russell W. Peterson, Chairman of the Council on Environmental Quality, spoke at the Conservancy's Annual Meeting Awards Luncheon. The speech was well received and is reprinted here in an abridged version for the benefit of those members who could not attend the Annual Meeting.

Because so much environmental discourse today is phrased in the vocabulary of opposition, it is a pleasure for me to meet the members of an organization which strives to join economic and environmental interests. In part, your approach derives from applying private and corporate philanthropy to conservation. And in part, it seems to me, your success derives from stressing an ecological approach to conservation. Avoiding a purely esthetic form of argument, you have adopted instead a hard-headed logic based on man's interrelationship with his environment.

Today I would like to try to blend your feelings for ecology and for economics in a perspective on the present-day tussle between these two forces. And by way of offering a sort of visible parable of the clash between these forces, let me tell you a little bit about Morgan City, Louisiana.

This community is located in the Mississippi Delta, about 70 miles southwest-by-west of New Orleans. In the 1930's, Florida shrimp began appearing in the waters around Morgan City in such numbers that they created a new industry. To express their appreciation for this economic gift from nature, the city fathers created an annual Labor Day Shrimp festival.

Well, times change. In 1947, the world's first offshore, out-of-sight-of-land, oil strike was made in the waters off Louisiana, and Morgan City became the base of another new industry. The city fathers still hold an annual festival to celebrate nature's largesse — only now it's called the Shrimp and Petroleum Festival.

Morgan City seems to me an appropriate symbol for our curent tug-of-war between economic needs and environmental concerns.

Our present unemployment rate is 8.7 percent nationwide, the highest since 1941. Last year's inflation rate was 12.2, the highest since 1946, and the current rate still exceeds 8 percent. The solution is generally considered to be economic growth.

In the face of these pocketbook issues which affect everyone, the environmentalist is perceived by many people as an obstacle to the solution of our economic problems. In general, critics play on two common themes: first, that environmentalists are carrying their concern for nature to extremes; and second, that while environmental protection is important, we cannot afford to divert to it funds and energies that are needed for economic growth.

On the contrary, environmentalists are not carrying their concern for nature to sufficiently extreme lengths; and if we want economic growth, we *must* divert funds and energies to environmental protection.

Let me take the second proposition first.

What is not commonly recognized is that environmental damage has always been a cost of production; it is only now that we are coming to realize the magnitude of such costs, and to recognize that dirty air, dirty water, and unhealthy conditions inherent in a work-site have always been paid for by somebody. What current environmental regulations try to do is to make the polluter pay for his pollution. As economists are fond of pointing out, "There is no free lunch." All environmentalists are saying is: "There is no free pollution."

Some critics of environmental protection programs argue that they promote unemployment. If the Reserve Mining Company—which is dumping potentially hazardous wastes into Lake Superior—had been shut down by court order, about 3,200 of the corporation's employees would have lost their jobs. Environmentalists cannot be so concerned about preserving other species that they ignore the preservation of *homo sapiens*. Economics has to be our business, too.

But there is another side to this economic coin. The Council on Enivornmental Quality estimates that the costs of federally-mandated environmental protection over the next decade will approximate $195 million. Yet those $195 million will not be spent for xeroxing copies of Environmental Impact Statements. According to CEQ studies, a typical wastewater treatment plant for a city of

100,000 people will cost about $4.2 million. These costs will break down as follows: 11.6 percent for metal products; 26 per cent for machinery and equipment; stone, clay and glass products, 12.6 percent; lumber and other materials, 3.1 percent; labor, 28.9 percent; and overhead and profit, 17.8 percent.

In other words, the sums spent for environmental repair do not disappear down the maw of an insatiable government agency; they go into the pockets of real, live, human beings working in the private sector who pay taxes, buy groceries, and in all other ways behave like consumers. A $20 billion per year expenditure for environmental protection is a powerful stimulus to our economy.

For the final part of my argument—the notion that, far from being extremists in the defense of nature, we are not being extreme enough—I turn to the science of ecology. It is provocative, I think, that the words economics and ecology come from the same Greek root: *oikos,* meaning house. But the emphases of the two words are quite different: ecology means "the study of the house," and economics means "the management of the house." Economics says, "Let us use the resources of our house to make it a better place to live." Ecology answers, "Fine . . . but be careful; for whatever we do to our house, we do to ourselves." And as ecologists and all of us are finding out, the interconnections between man and nature are often hidden, surprising, and highly sensitive—and many of them have quantifiable, economic consequences.

There are countless illustrations of this. In East and Central Africa, large numbers of hippopotamuses have been killed off because they were destroying crops; that seemed a simple solution to a simple problem of predator control. But with the elimination of the hippopotamus, the natives soon noted, came a quick reduction in the local catch of a fish known as *Tilapia,* a vital source of protein for those who live along the lake shores and river banks. The ecological connection between the two was hippo excretion; deposited in the water, it fertilized tiny algae on which *Tilapia* feed.

The lesson of ecology is not that man must halt all efforts to improve his lot, and return to the caves; the lesson, rather, is that he must learn to estimate all the costs—in terms of natural depletion as well as financial outlay—before he undertakes an environmentally damaging project.

Let me summarize under two headings:

First, regarding the costs of environmental protection, my argument can be stretched too far: Though such investments can contribute to economic growth, they can do so only to a degree. Clearly there is a limit to the amount of resources we can devote to environmental protection. The point, however, is that such investments can contribute to growth, and that we environmentalists should stop being defensive about the "costs" such investments entail.

Second, I think the environmentalist movement must move beyond its historical roots in a simple love of natural beauty, to a new maturity based on the science of ecology. We must be able to demonstrate to our critics that our concern for man's ecosystem is every bit as practical as their concern for man's economy.

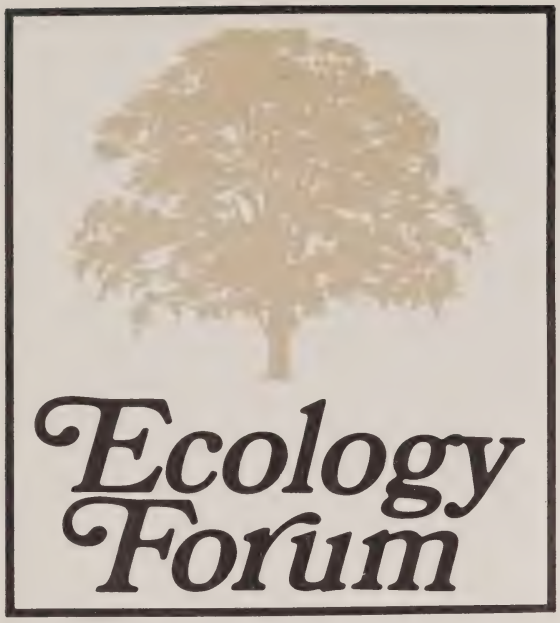
We must be able to point out, for example, that the continuing depletion of wetlands and estuaries is not simply a matter of disturbing a few birds, but of altering an ecosystem that nature spent eons designing—an ecosystem that has several functions: to clean air and water, to provide nurseries for marine organisms, to furnish food for marine fisheries, to buffer hurricanes. We must remind man that nature does not work on a fiscal-year schedule; and that a corporation's need to develop good results quickly, in time for the next annual report, may cause damage that our ecosystem cannot repair for a decade, if ever.

Which brings me back to Morgan City. Oil has made it a much more prosperous and populous community. Its median income is $10,530, more than $2,000 above that for the state. There is no unemployment; in fact, if it had more housing, Morgan City could put more people to work immediately. And tax contributions from the oil companies keep property taxes low: as little as $100 a year, for example, on some $100,000 homes.

In 25 years, though, the oil will be gone. And since some components of petroleum sink into the bottom sediments and persist for years; and since oil in concentrations of one part per million of water is toxic to shrimp, and can interfere with their living processes at even lower concentrations, it is possible that the shrimp will be gone, too—forever.

I devoutly hope that will not happen. But if it does, I wonder what Morgan City will call its festival then.

Nature has given all of us, no matter where we live, a single festival; it is called life. Environmentalists and industrialists must reach for a new partnership, to make sure that festival is still around for our great-great-grandchildren to celebrate. We must try to reconcile the valid claims of ecology with the valid claims of economics—for, while it is not possible to study our house to death, it is definitely possible to manage it to death.



No. 16
by Jill Betts

THE OREGON NATURAL HERITAGE PROGRAM

As early as 1966, members of TNC's Oregon Chapter had been aware of the need to collect accurate and comprehensive information about Oregon's natural areas. The Chapter helped establish some outstanding preserves in the state—including Cascade Head and the Sandy River Gorge, but many members realized that, if a representative selection of Oregon's natural areas were to be preserved, the task must begin with improving our knowledge about natural areas in the state.

In early 1973, people began working to make the dream a reality. Jean Siddall and Dr. Bert Brehm drove out to the Portland airport to talk with Dr. Jerry Franklin between planes. Dr. Franklin, who was on his way to Washington, D.C., to take charge of the Ecosystems Program for the Natural Science Foundation, had been instrumental in establishing the U.S. Forest Service's Pacific Northwest Natural Areas Committee, which had already done so much to inventory and establish research natural areas on federal lands. The meeting encouraged Siddall and Brehm to lead the Oregon Chapter in more active efforts at natural area identification.

At the same time, Dr. G. Jon Roush, then Director of the Conservancy's Northwest Office, was thinking about a natural areas inventory in Oregon. He approached the Chapter Board about cooperation in an inventory, and the idea received unanimous approval.

A small amount of money from a Conservancy supporter was used to attain a grant from the Western Interstate Commission for Higher Education (WICHE), which allowed TNC to hire a student intern for the summer. The student was Elizabeth Rodrick, who spent the summer studying the relevant literature, consulting with agency and academic people, and preparing a planning report on an Oregon Inventory of Natural Areas. Ms. Rodrick was guided in her work by a steering committee composed of representatives from the Oregon Chapter and the Northwest Office.

The establishment and development of the Oregon Natural Heritage Program, now a statewide program which was designated for special funding by the 1975 Oregon legislature, speaks well to the grassroots tradition in Oregon. Started by a relatively small chapter and a newly established field office, with seed money of $900, the effort grew rapidly. Betty Rodrick's study called for an inventory of natural areas on private lands, coordinated with efforts by state and federal agencies to inventory natural areas on their lands. The report suggested the beginning methodology for such a study and set some long range goals.

That initial report was used both as the basic planning document for the inventory, and as a fund-raising document. TNC approached local foundations asking for a level of funding that would allow work to begin in earnest. In the meantime, the Chapter helped out a little from its treasury, and Betty Rodrick gave generously of her time to continue the work.

Finally, in January, 1974, the Jackson Foundation granted the project $5,000. Three months later, the Yarg Foundation made a grant of $4,000. At last, there were sufficient funds to make advance planning a reality. The program took on two work/study students—a typist and a student cartographer. The steering committee decided that a pilot project should be done in one county, and they selected Clatsop County, a coastal county with particularly fragile natural resources.

The staff threw itself into the Clatsop pilot project. This would be an attempt to go through the entire inventory process, from literature and people research through site identification, site evaluation, classification and the production of a report. The hope was that, by doing the whole job in microcosm, we could "work out the bugs" and prevent mistakes from being made on a massive scale.

In the meantime, with all of Betty's efforts going into Clatsop County, the project needed somebody to follow up on the statewide contacts, which had already been made, and to keep the momentum of the entire project building. After an exhaustive search, the steering committee retained Wayne Rifer to co-ordinate the Oregon Inventory. Wayne began building a statewide roster of people who would work actively for the project, and at the same time he assumed some of the fundraising efforts which had been the work of the steering committee.

The effort in Oregon was substantially home grown, but the Conservancy's national staff soon took an active interest. In early spring of 1974, Jon Roush and Dave Morine, along with the Northwest Director Ken Margolis, payed a visit to Governor Tom McCall to discuss possible state cooperation in the program. It was Governor McCall who suggested at that meeting, "Why don't you call it a heritage program, as you are doing in other states? I could certainly support a program to protect our beautiful natural heritage." Staff and steering committee agreed that the Governor's suggestion described the work best, and the Oregon Natural Heritage Program was born.

A month later, in June, the Northwest Office sponsored a regional workshop of natural area workers at Helena, Montana. Dr. Robert Jenkins and John Humke from TNC's national staff attended to offer guidance, and natural area workers representing most of the northwest states were there. From Oregon's point of view, the important factor was the attendance of Glenn Juday, Chairman of the Oregon State Natural Areas Preserve Advisory Committee, a group set up to create a natural area system on state lands. Plans were solidified for increased coordination between the TNC program and the state program. In the following months, the Oregon staff, with assistance from Jean Siddall of the Chapter, put together the mechanism for cooperation between the state, federal and private sectors. As a result, Oregon is on its way to having a complete registry of natural areas, under all ownerships.

During the summer of 1974, the staff printed an Inventory of Natural Areas in Clatsop County. The Inventory has received some use as a planning tool by the Clatsop County Commissioners and planners. It also has worked well as a learning tool for the Heritage staff.

The bulk of information for the Heritage Program is obtained by contacting Oregon naturalists, conservation-minded citizens and citizen organizations, as well as the many federal, state and county natural resource agency personnel. The staff also researches pertinent literature and has conducted mass mailings. As they began actual statewide inventory work, a $40,000 contract matching Conservancy and state funds was negotiated with the Oregon Parks Department.

Under the terms of the contract, the Oregon Natural Heritage Program is conducting an inventory of the important natural areas on private lands in the state; will propose implementation strategies for protection of the suggested natural areas; and participates in the coordination of federal, state and private natural area inventory efforts in the state. TNC's national Natural Heritage Program is contributing, as part of the contract, $10,000 worth of services and support, as well as a national view of implementation strategies along with suggestions for Oregon. The document resulting from the 10-month contract period will supply Oregon Parks Department with a list of evaluated natural areas and a strategy for implementation of the Inventory.

The Heritage Program, at this writing, anticipates completing its final year of work in cooperation with Oregon's new state land use agency, the Dept. of Land Conservation and Development. The Heritage Program will coordinate with the local and state land use planning agencies to provide a comprehensive process for continuing inventory and a plan for protecting the full range of ecological types in Oregon. The information the Heritage Program produces and protection strategies it proposes can then be used by the state in a comprehensive natural area protection system, as well as on the local level by city and county planners and citizen conservation groups to preserve and protect natural areas which are important to the local communities in the state of Oregon.

MEMBERSHIP DRIVE REPORT

Despite a valiant effort by most of our chapters, the campaign goal of 2,000 new members by July 4th proved to be out of reach. A total of 1,087 new members were enrolled during the ten-week campaign period.

Each chapter had a target quota equal to 15 percent of its membership. A $500 award was offered both to the chapter bringing in the most new members, and to the chapter achieving the highest percentage of its quota. The winners were the Connecticut Chapter, with 198 new members, and Idaho, which achieved a remarkable 311% of its quota. Other chapters exceeding their quotas were South Dakota (280%), Texas (163%), Kentucky (121%), and Indiana (103%).

CONSERVATIONISTS UNITE

In a spirit of good will and cooperation, The Nature Conservancy and the Society for the Protection of New Hampshire Forests last month announced a formal affiliation. The two organizations will pool their talents and resources for identification, acquisition, and protection of important natural areas throughout New Hampshire.

The Society, founded in 1901, is a leader in conservation efforts throughout New Hampshire. Besides protecting such important areas as Mt. Monadnock and Franconia Notch, the Society has been active in a broad spectrum of related activities. The organization has been responsible for establishing the White Mountain National Forest and a State Forest Service, removing growing timber from annual property taxation, initiating the New Hampshire Tree Farm System, pioneering local conservation commissions, and the establishment of the New Hampshire Natural Resources Council, the Natural Preserves Forum, and the Environmental Law Council. The Society has also published an impressive series of books and pamphlets on environmental issues.

Commenting on the alliance, Paul Bofinger, the Society's President, said, "Competition and vainglory have no place in conservation. With the Conservancy, we will work even harder to keep New Hampshire fresh, green, and beautiful."

ANNUAL REPORT 1975

The Nature Conservancy's Annual Report for 1974 is now available on request. Write to Ms. Sue Dodge, Director of Publications, at the National Office.

For the first time since 1969, the Conservancy returns to the west for its Annual Meeting and Conference.

PORTLAND, OREGON
May 22 and 23, 1976

Twenty-Sixth Annual Meeting and Conference

Headquarters for the Conference will be Portland's Benson Hotel.

Please reserve the dates and make plans to attend. The 1976 event promises to be one of the most interesting, informative and enjoyable conferences in the Conservancy's history.

CONSERVANCY BOARD MEMBERS RECOGNIZED

Two members of the Conservancy's Board of Governors, Roy E. Larsen and Wilhelmine Kirby Waller, have been named to receive American Motors Conservation Awards for 1975. Both are winners in the non-professional category.

Mr. Larsen's leadership has been chiefly responsible for the extraordinary success of the Nantucket Conservation Foundation, which he founded. In addition, he has been an effective intermediary between conservationists and business, and his behind-the-scenes assistance was highly important in making possible the establishment of the Big Thicket National Biological Preserve in Texas.

Mrs. Waller is recognized as one of the most dedicated crusaders in the country's conservation movement, and her abilities have been called upon on both national and international levels. She served as president of the Garden Club of America, and is a member of the Citizens' Advisory Committee on Environmental Quality which reports to the President. At the international level, she served on the Advisory Committee to the Secretary of State for the U.N. Conference on Human Environment. And in New York's Westchester County, where she lives, Mrs. Waller has made lasting contributions to a long list of organizations and conservation causes.

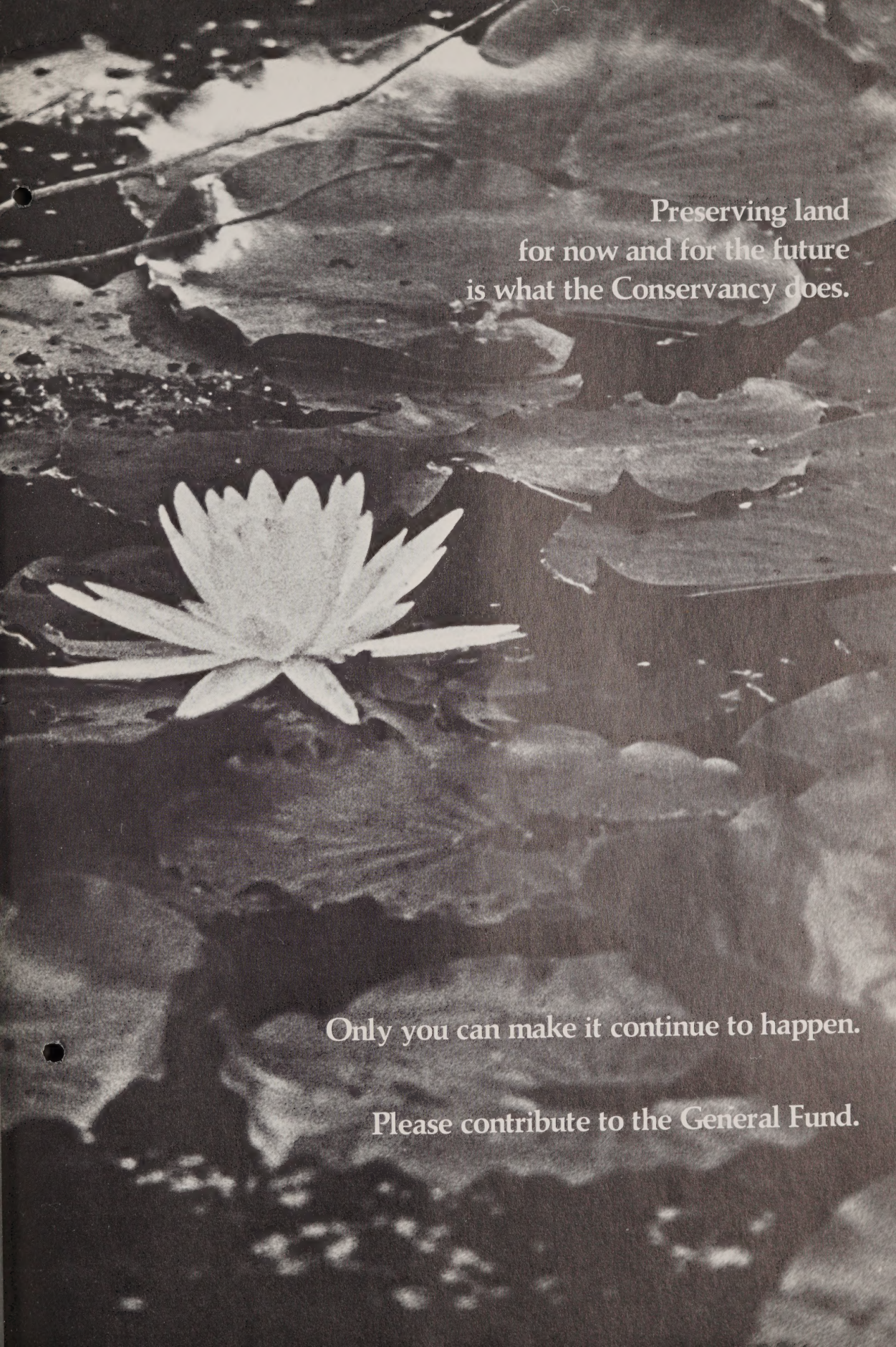
HILLER RETIREMENT

The Conservancy extends belated best wishes to Herb Hiller, who has retired from the staff. A past receipient of the Conservancy Oak Leaf Award, Mr. Hiller lives in New Jersey and, as a volunteer, continues to work with the Eastern Regional Office staff to review projects and make preliminary evaluations of areas in northern New Jersey and nearby New York. He also gives Conservancy presentations to service and garden clubs in New Jersey.

NEW CHAPTER FORMED

A Northeastern Pennsylvania Chapter has been formed and was recently chartered by The Nature Conservancy. Encompassing the counties of Bradford, Carbon, Lackawanna, Luzerne, Monroe, Pike, Schuylkill, Sullivan, Susquehanna, Tioga, Wayne and Wyoming, the new chapter brings to 32 the number of Conservancy chapters and subchapters now active across the country. Arthur Watres II is serving as the new chapter's first chairman.

PHOTOGRAPHS: Bettmann Archive, p. 10; Barbara Dodge, p. 7; Duncan Heron, p. 5; Robie Ray, inside back cover.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